

**C. REMARKS**

Reconsideration and allowance are requested in view of the foregoing amendments and the following remarks.

**35 U.S.C. § 103(a) Rejection**

Claims 77-90 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,040,291 to Janisiewicz et al. ("Janisiewicz") in view of U.S. Patent No. 5,768,759 to Hudson ("Hudson"), and in further view of U.S. Patent No. 4,675,993 to Harada ("Harada"), U.S. Patent No. 3,881,605 to Grossman ("Grossman"), U.S. Patent No. 5,084,962 to Takahashi et al. ("Takahashi"), and U.S. Patent No. 6,128,074 to Hong et al. ("Hong"). Applicants respectfully traverse this rejection.

In the present Office action, the Examiner admits that Janisiewicz fails to teach "fiducial markers and an optical fiducial marker detector, a controller, detecting the fiducial marker prior to retrieving from the component feed source, detecting the fiducial maker (sic) on the component prior to retrieving from the component feed source, and alignment data representing lead orientations for the component"<sup>1</sup> yet alleges that it would have been obvious "to modify Janisiewicz by providing fiducial markers and comparing steps, as taught by Hudson, for the purpose of correctly positioning components on printed circuit boards."<sup>2</sup> The Examiner also alleges that it would have been obvious "to modify Janisiewicz by providing a printed fiducial marker detector, comparing steps and a controller, as taught by Harada, for the purpose of correctly positioning components on printed circuit boards."<sup>3</sup> The Examiner further alleges that it would have been obvious "to modify Janisiewicz by

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<sup>1</sup> See Office action, p.2.

<sup>2</sup> Id. at p. 3.

<sup>3</sup> Id.

providing an optical fiducial maker (sic), as taught by Takahashi, for the purpose of determining a component's exact position."<sup>4</sup> The Examiner alleges that it would have been obvious "to modify Janisiewicz by detecting the fiducial maker (sic) on the component prior to retrieving from the component feed source, as taught by Grossman, for the purpose of eliminating bad products."<sup>5</sup> The Examiner alleges that it would have been obvious "to modify Janisiewicz by providing alignment data representing lead orientations for the component, as taught by Hong, for the purpose of reducing human errors, increasing the accuracy and precision of the inspection and productivity."<sup>6</sup>

While Applicants disagree with the Examiner's grounds rejections, independent claims 77, 82, and 85 have been amended in order to expedite prosecution. In particular, Applicants have amended claims 77, 82 and 85 to recite said optical fiducial marker detector generating alignment data for said retrieved component in response to detection of the fiducial marker on said component (see e.g., component 2 and leads 4 shown in Figs. 1(a) and 5).

Applicants submit that Hudson, Harada, Takahashi, Grossman, and Hong alone or in combination, fail to remedy the admitted deficiencies of Janisiewicz for at least the following reasons.

Harada discloses a marker printed with magnetic ink at the center of the component.<sup>7</sup> According to Harada, a vacuum fastener having a magnetic sensor may

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<sup>4</sup> Id.

<sup>5</sup> Id.

<sup>6</sup> Id. at p. 3-4.

<sup>7</sup> See Harada, col. 6, ll. 15-23.

attract the center of the component.<sup>8</sup> Harada is devoid, however, of any teaching or suggestion that the magnetic marker may indicate an orientation of a plurality of leads protruding from the component.

Takahashi merely discloses "a second camera for picking up a picture of a positioning mark or a fiducial mark, e.g., a through-hole or the like, the positioning mark being previously applied onto a printed circuit board on the X-Y table."<sup>9</sup> There is no teaching of a fiducial mark on a component and, hence, no suggestion to use the camera to detect a fiducial mark on a component or generate alignment data representing lead orientations.

While Hudson discloses fiducial marks, there is no teaching or suggestion to use such fiducial marks for ***correctly positioning components***. To the contrary, Hudson teaches that the fiducial marks are used for calibrating the center of a pick-up nozzle 26 in relation to the field of view of a camera 20. Furthermore, while Hudson does teach determining position correction information for a component, such information is determined during transport, i.e. after retrieval, of the component. In view of the above, there clearly can be no motivation to detect the fiducial markings of Hudson, which are located on the bottom of a component, prior to pick-up by the nozzle 26.

Grossman merely discloses "a video camera looking down on the base from above. The camera can input to the computer signals indicating the presence or absence of the objects at the points where sensors 38 and 38' are shown."<sup>10</sup> There is no teaching of a fiducial mark on a component and, hence, no suggestion to use the camera to detect a fiducial mark on a component or generate alignment data representing lead orientations.

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<sup>8</sup> Id.

<sup>9</sup> See Takahashi, col. 1, ll. 56-59.

<sup>10</sup> See Grossman, col. 4, ll. 2-6.

Hong discloses a pin grid array inspection device for segregating flawed pin grid arrays having bent leads from good pin grid arrays having no bent leads. According to Hong, the leads of the pin grid array are fully inserted into the corresponding holes of an inspection gauge.<sup>11</sup> If any of the leads are bent by more than the hole radius, friction between the bent lead and its corresponding hole prevent the pin grid array from sitting down completely into the inspection gauge.<sup>12</sup> Hong also teaches optical inspection receivers for receiving optical inspection beams that indicate the presence of a good lead.<sup>13</sup>

Applicants remind the Examiner that the Federal Circuit has explained repeatedly that to support an obvious rejection, the prior art must suggest not merely that modification of the prior art is possible, but rather that the exact modification at issue is desirable.<sup>14</sup>

The Examiner also is reminded that in order to establish such a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.<sup>15</sup> In addition, there must be a reasonable expectation of success.<sup>16</sup> Moreover, the prior art must teach or suggest all of the claim limitations.<sup>17</sup> Such teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.<sup>18</sup>

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<sup>11</sup> See Hong, col. 5, ll. 33-44.

<sup>12</sup> Id.

<sup>13</sup> Id. at col. 6, ll.30-58.

<sup>14</sup> See, e.g., *In re Laskowski*, 871 F.2d 115 (Fed. Cir. 1989) ("[T]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification."); *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990) (Although a prior art device "may be capable of being modified to run the way [that applicant's] apparatus is claimed, there must be some suggestion or motivation in the reference to do so.").

<sup>15</sup> See MPEP § 2143 citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

<sup>16</sup> Id.

<sup>17</sup> Id.

<sup>18</sup> Id.

Applicants submit that even if Hudson, Harada, Takahashi, Grossman, and Hong could be combined with each other and with Janisiewicz, which Applicants do not admit, such combination still would fail to disclose all the elements of independent claims 77, 82 and 85. Furthermore, the devices described in Hudson, Harada, Takahashi, Grossman, and Hong clearly operate on different principles and therefore cannot be combined without destroying the functionality of the corresponding devices. As such, there is no motivation or suggestion in the cited art for combining Hudson, Harada, Takahashi, Grossman, and Hong with each other or with Janisiewicz.

For at least these reasons, Applicants submit that the outstanding grounds of rejections are based on impermissible hindsight reconstruction, using Applicants' claim as a template to reconstruct the claimed invention by picking and choosing isolated disclosures from the prior art.<sup>19</sup> The Examiner is required to do more than point to isolated disclosures of components from the prior art which are used separately or in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor.<sup>20</sup>

Applicants submit that the prior art of record, including Janisiewicz, Hudson, Harada, Takahashi, Grossman, and Hong fails to teach or suggest all the elements of independent claims 77, 82, and 85. In addition, Applicants contend that the prior art of record fails to provide any suggestion or motivation to modify or combine reference teachings or of a reasonable expectation of success. Applicants submit, therefore, that claims 77, 82, and 85 are allowable for at least the reasons set forth above and that claims 78-81, 83, 84, and 86-90 are allowable by virtue of their dependency, as well as on their own merits.

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<sup>19</sup> See *In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

<sup>20</sup> See *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934, 15 U.S.P.Q.2d 1321, 1323 (Fed. Cir. 1990).

**Additional Claims**

Claims 91-102 have been added. Applicants submit that the prior art, including U.S. Patent No. 5,040,291 to Janisiewicz et al., U.S. Patent No. 5,768,759 to Hudson, U.S. Patent No. 4,675,993 to Harada, U.S. Patent No. 3,881,605 to Grossman, U.S. Patent No. 5,084,962 to Takahashi et al. , U.S. Patent No. 6,128,074 to Hong et al., U.S. Patent No. 5,848,707 to Hill, and U.S. Patent No. 5,913,180 to Ryan, fails to teach suggest the subject matter of claims 91-102.

**D. CONCLUSION**

Applicants submit this application is in condition for allowance and request favorable action in the form of a Notice of Allowance.

Respectfully submitted,

November 10, 2004

A handwritten signature in cursive script, appearing to read "Robert V. Racunas, Jr.", written over a horizontal line.

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